

# Retrieving Data from Mailbox

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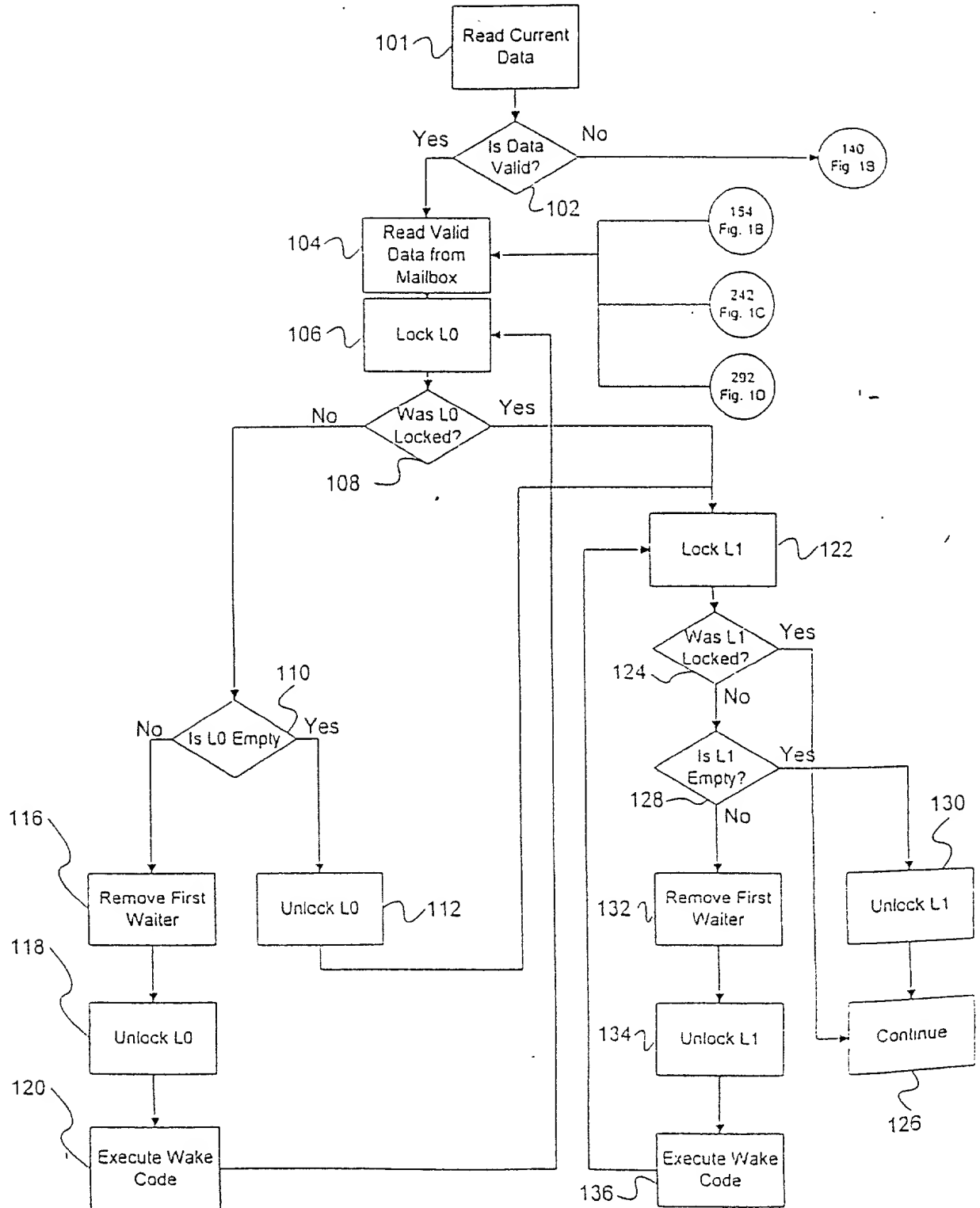


Fig. 1A

# Reading Data from Mailbox

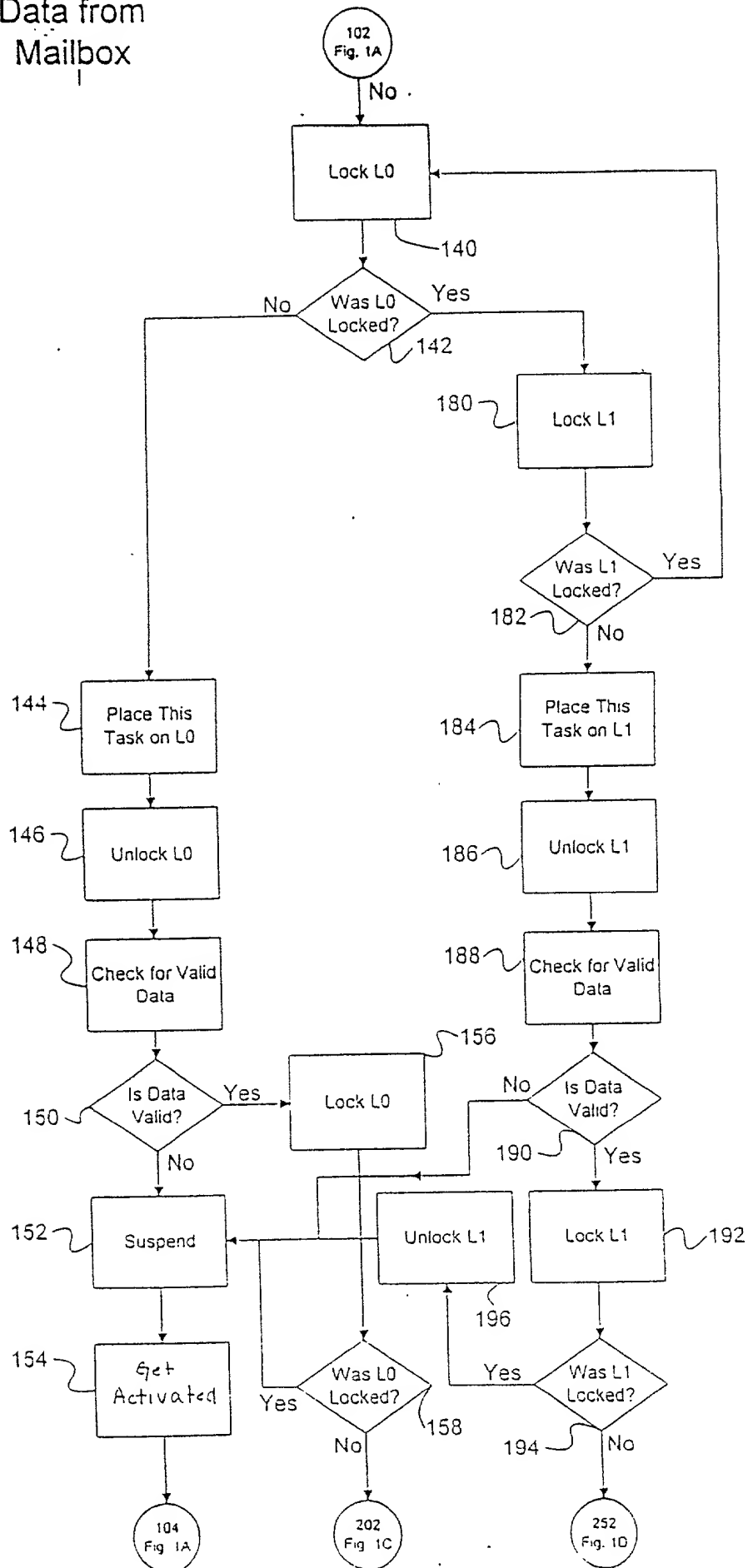


Fig. 1B

# Reading Data from Mailbox

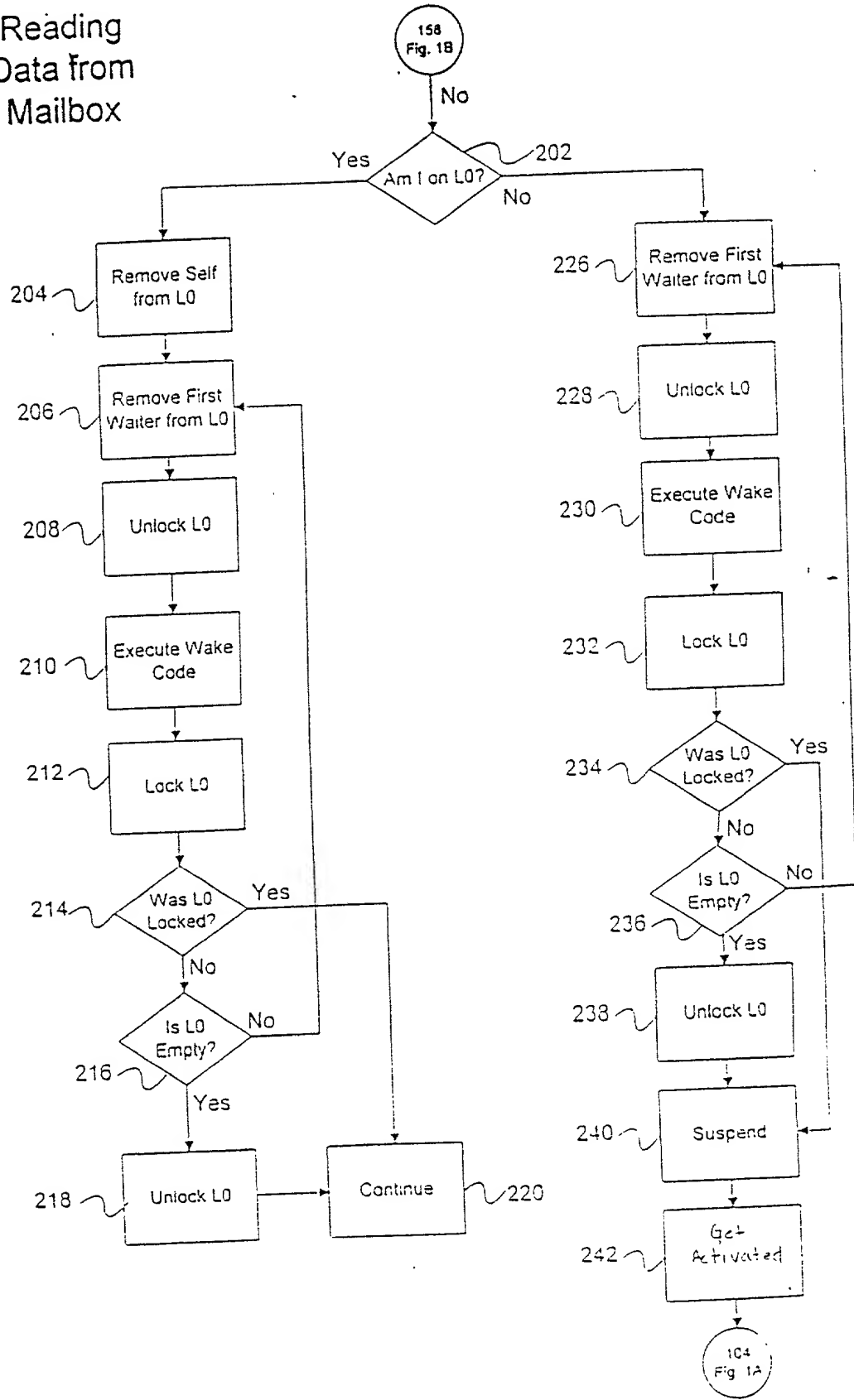


Fig. 1C

# Reading Data from Mailbox

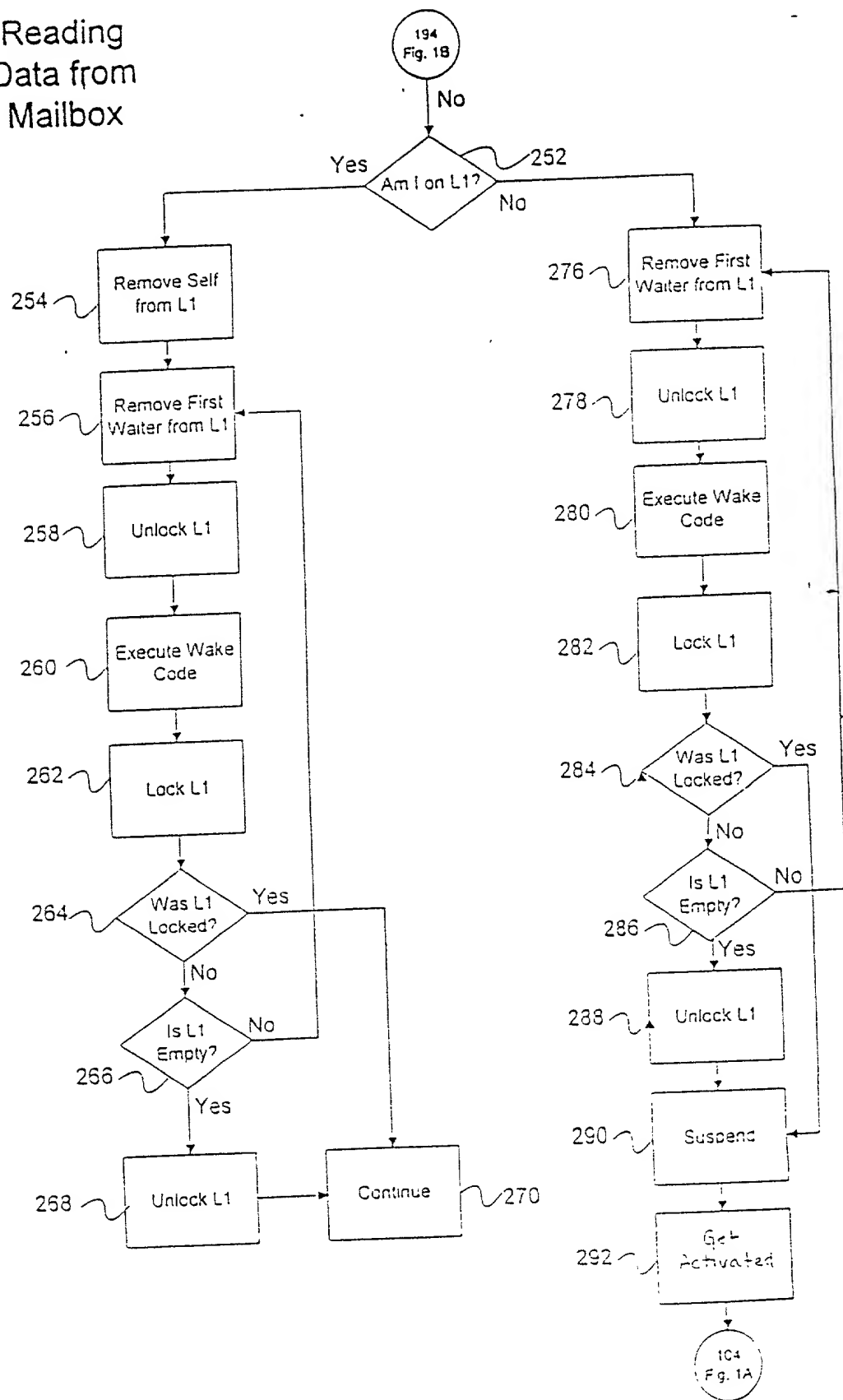


Fig. 1D

# Placing Data in Mailbox

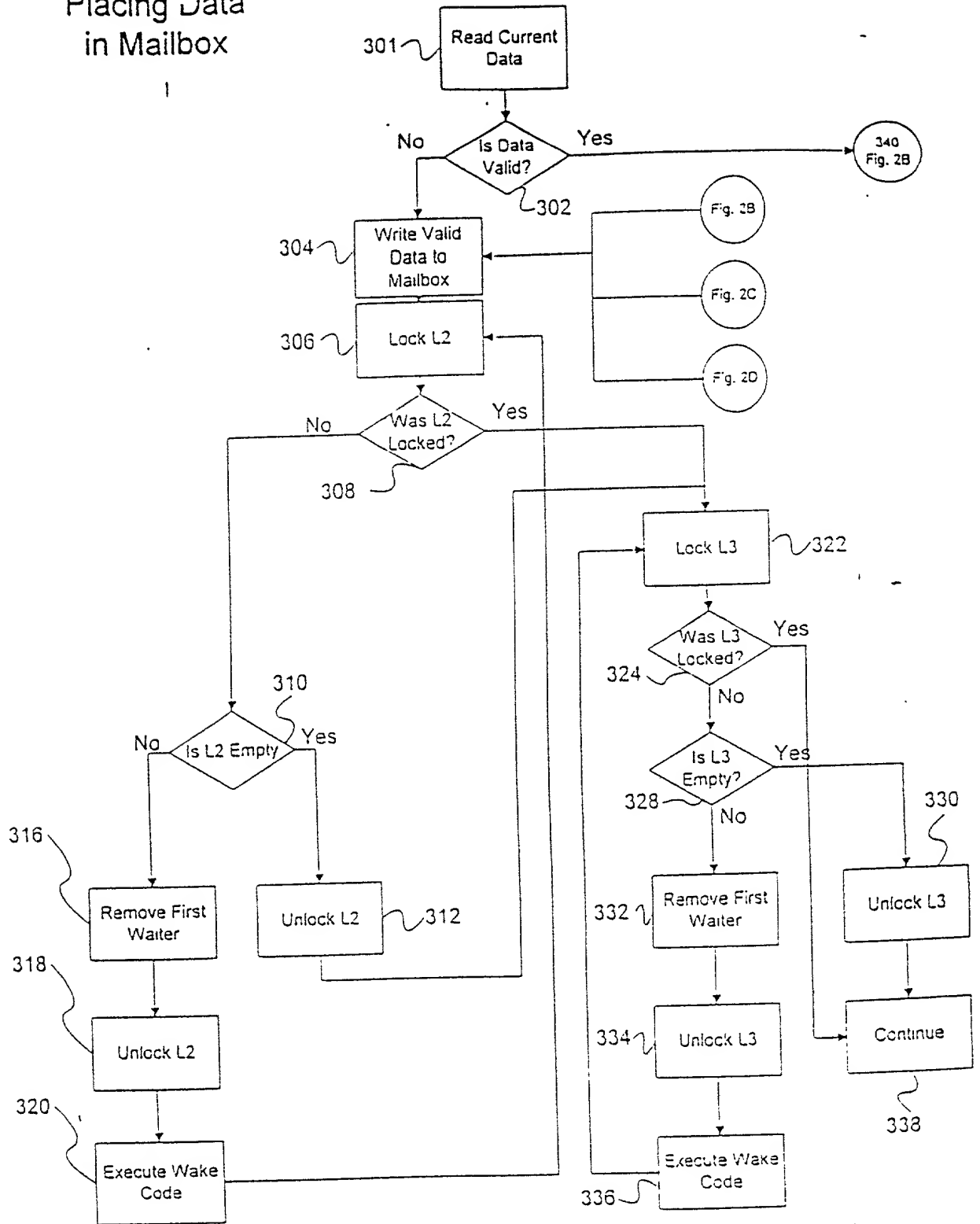


Fig. 2A

# Placing Data in Mailbox

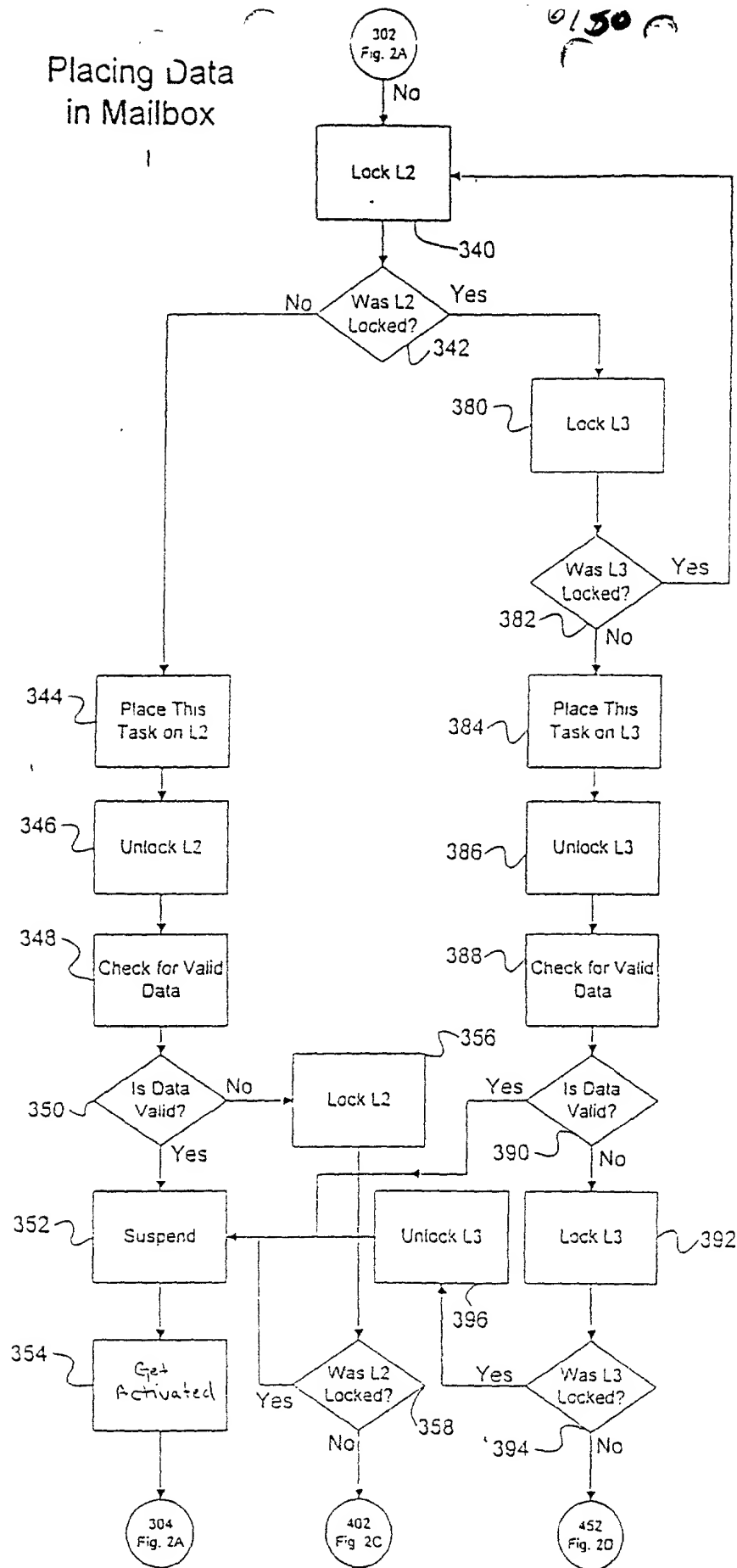


Fig. 2B

# Placing Data in Mailbox

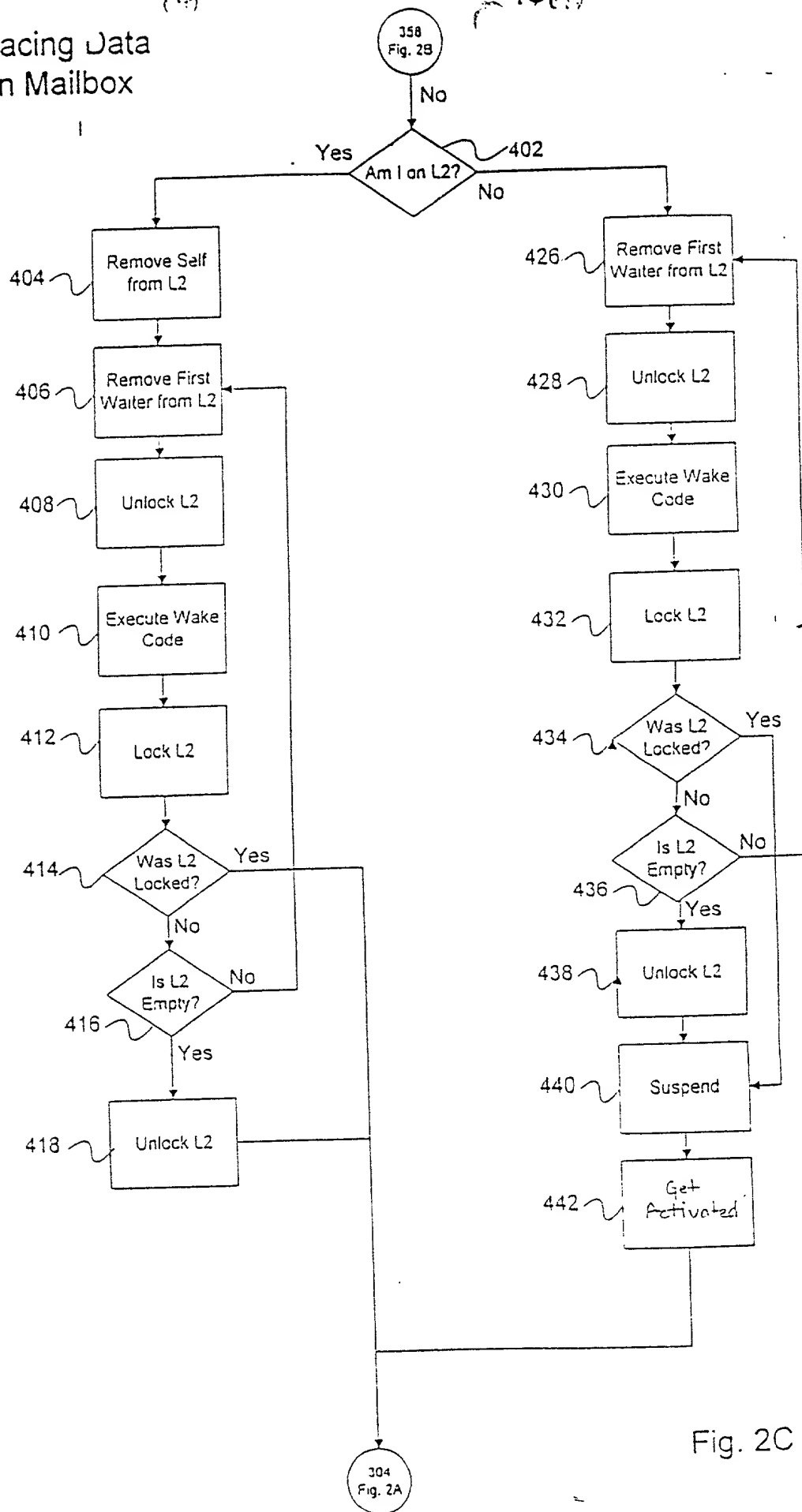


Fig. 2C

# Placing Data in Mailbox

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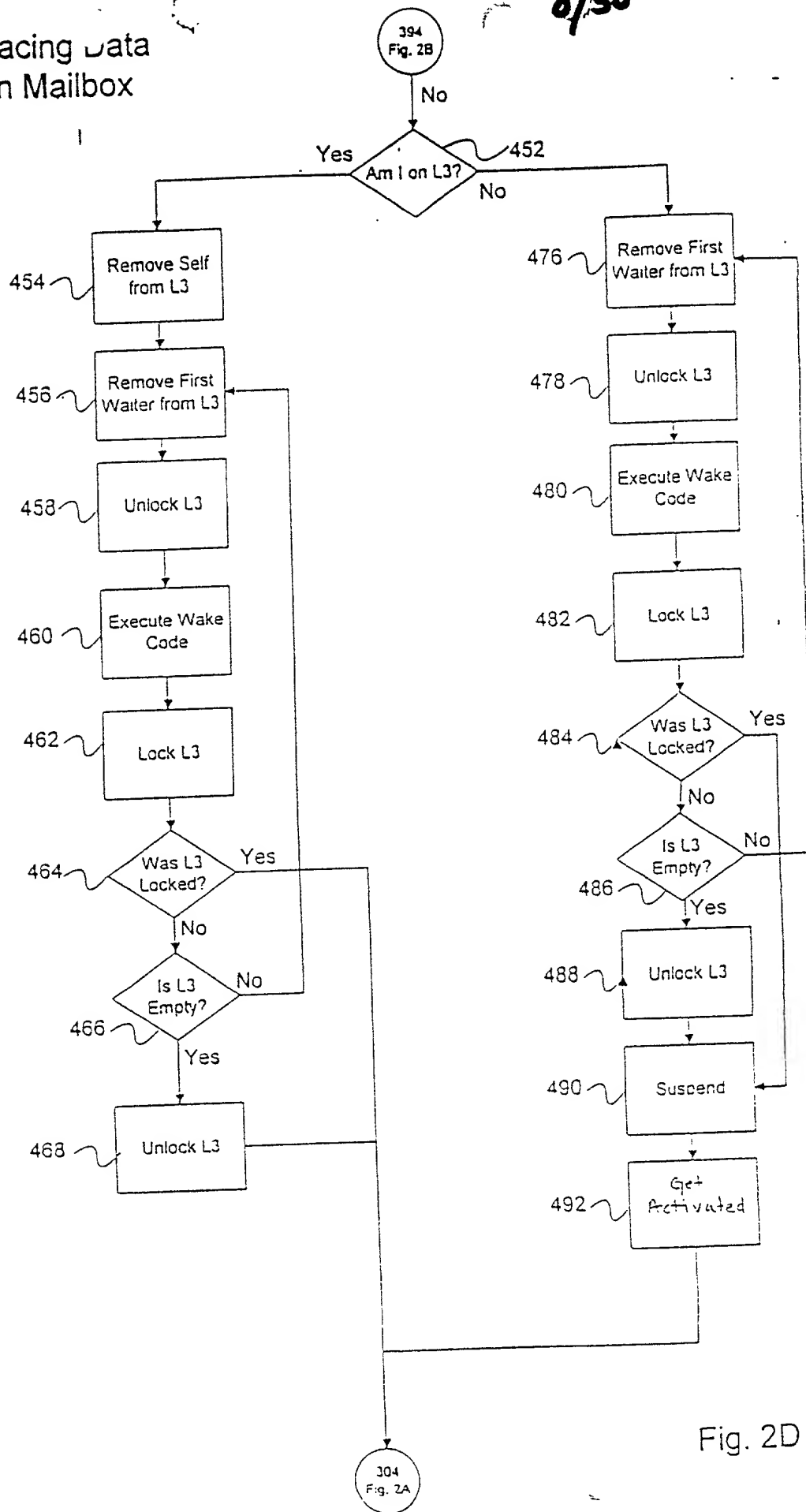
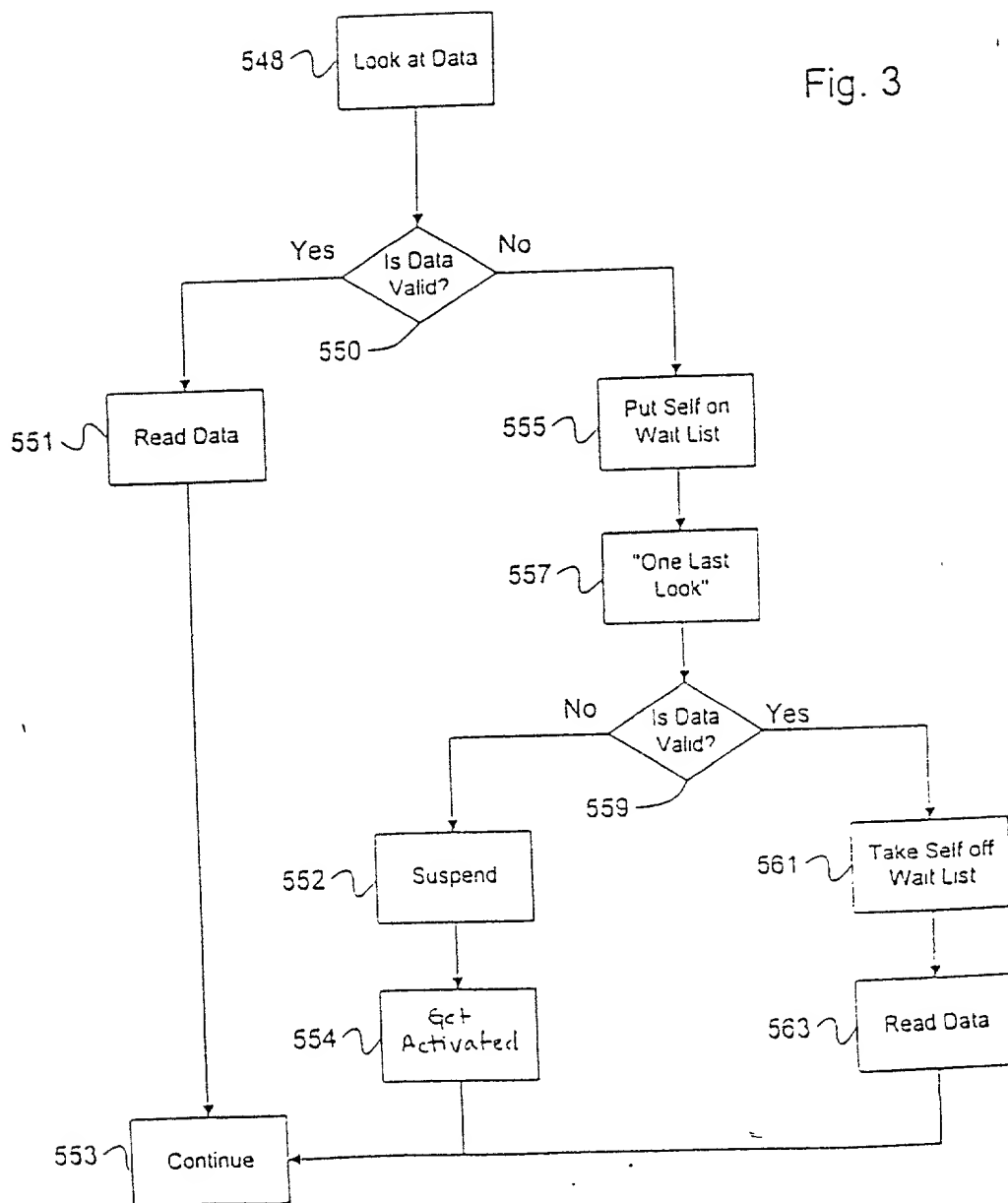


Fig. 2D



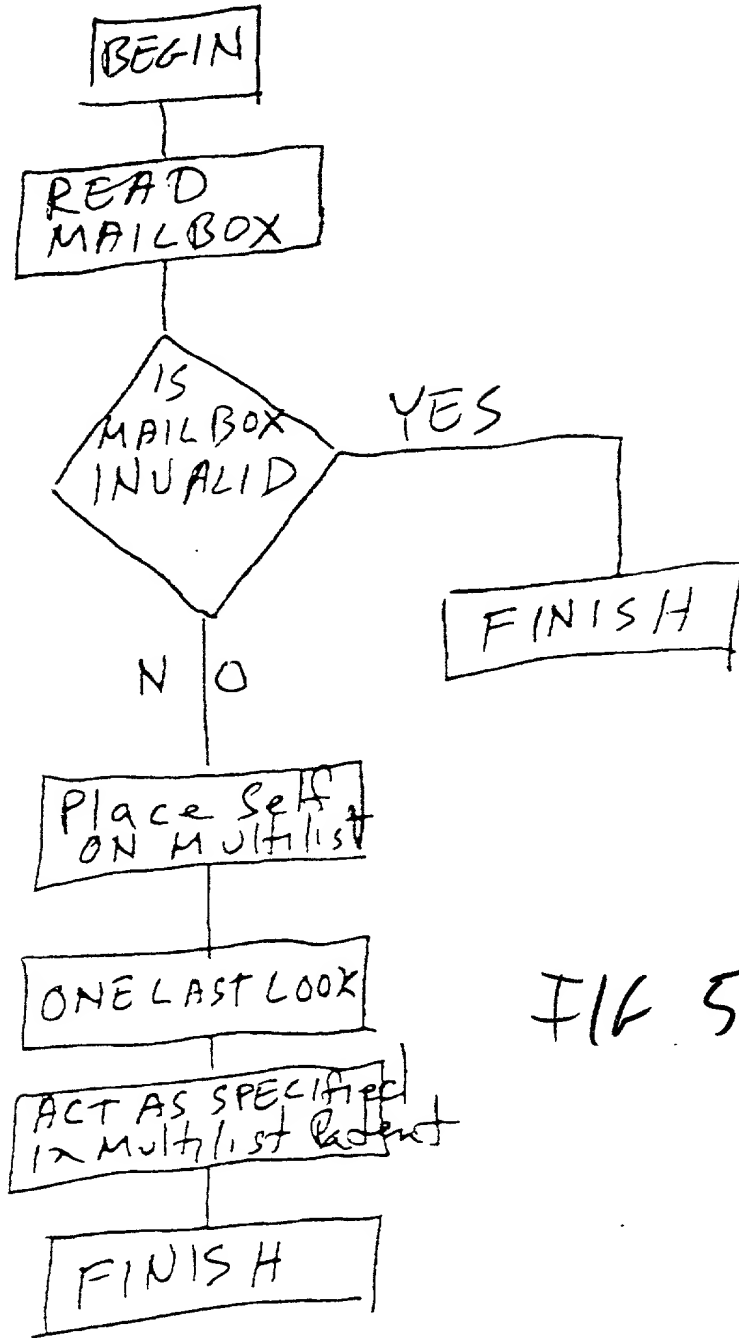
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Fig. 3





NOT READ



7/6 5

12/30

O R

~~to be (1/2/2020)~~

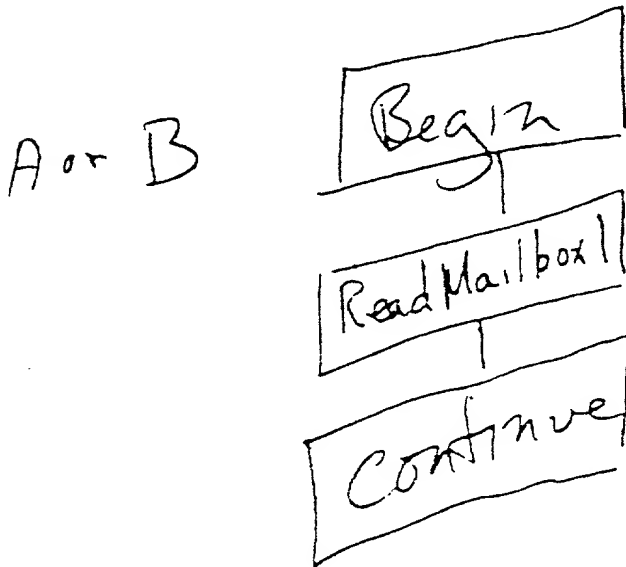
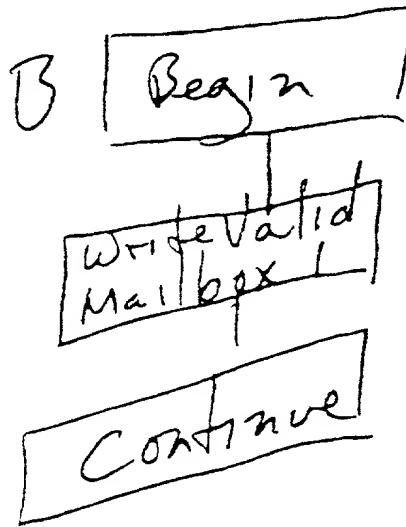
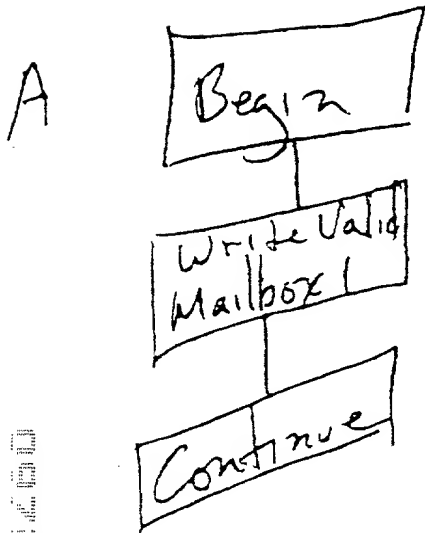


FIG 6

000001-57500000

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AND

~~Read (There is no AND side)~~

A and B

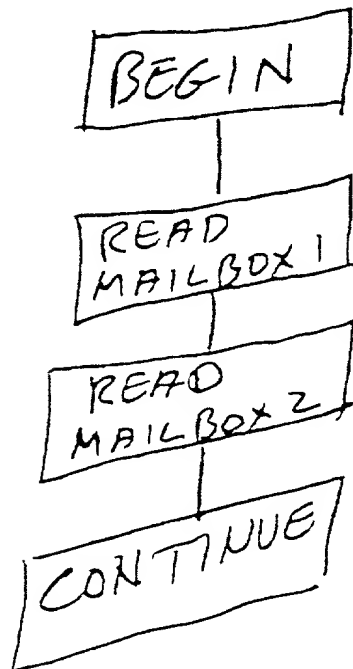
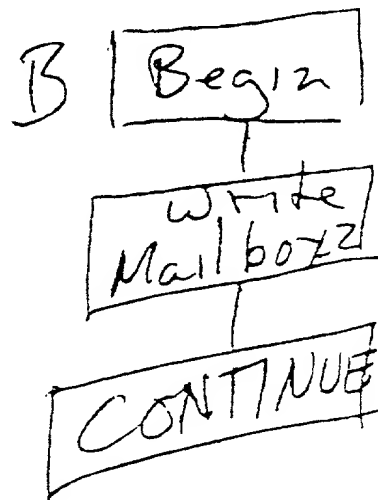


FIG 7



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# Continuation 2,3

## Possible Memory Organization

Row Pointer
Column Pointer

CELL

NEIGHBOR PTR
NEIGHBOR PTR
!
NEIGHBOR PTR
<sup>EVEN</sup> LIST COUNTER
<sup>EVEN</sup> LIST
<sup>ODD</sup> LIST COUNTER
<sup>ODD</sup> LIST
TICK COUNTER
+2 LIST COUNTER
+3 LIST COUNTER
+2 LIST
+3 LIST

object

Value
Multilist
Code, Ptr
Location Ptr

object address

Fig 8

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Cont. 2

# Cell Behavior

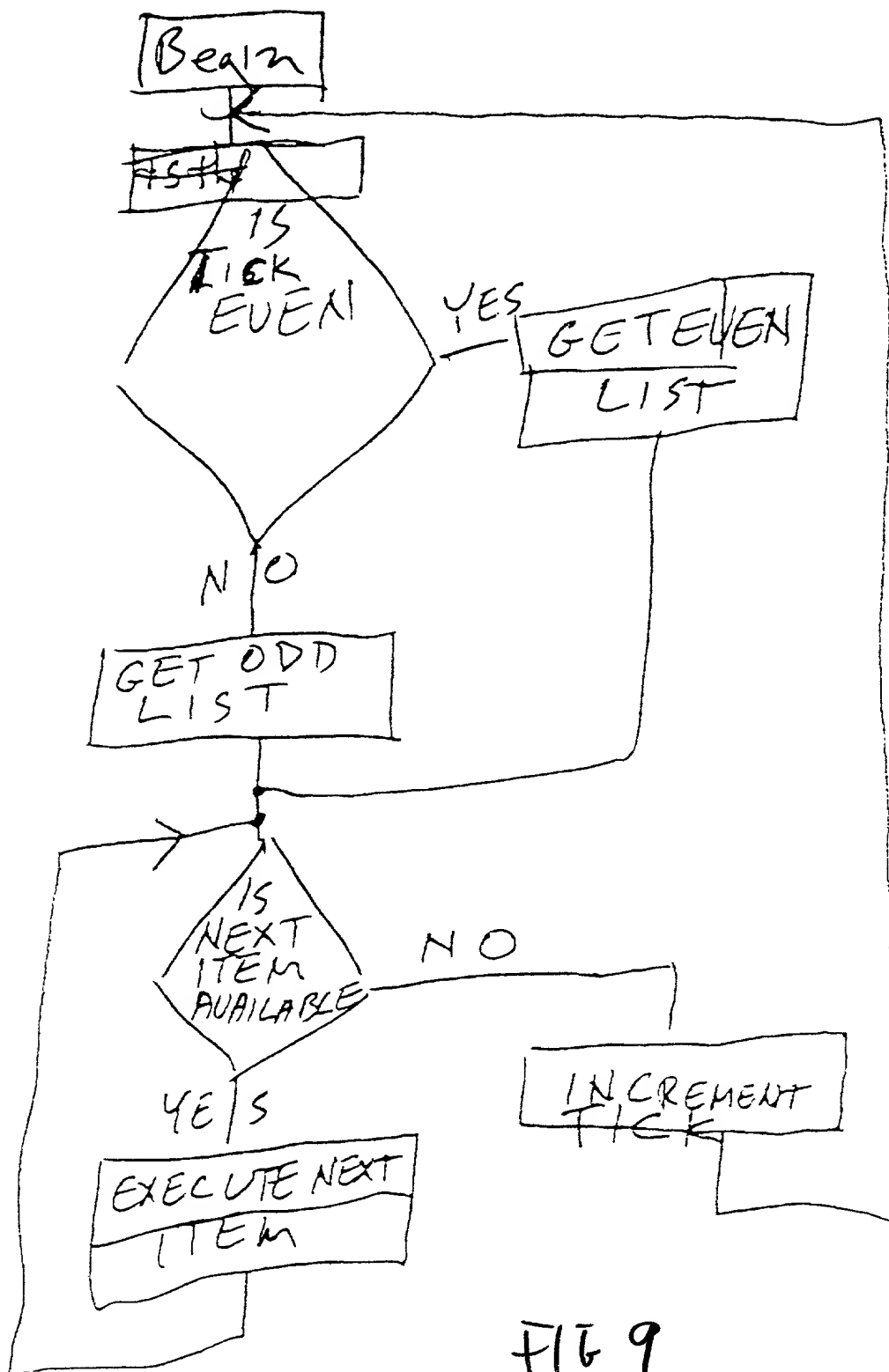


FIG 9

cont. 2

## Object Behavior

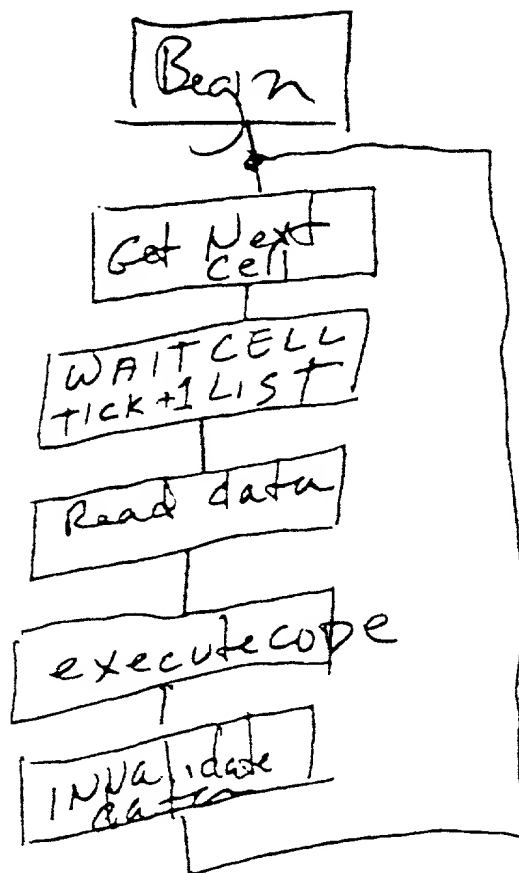


FIG 10



# Lock Free Record<sup>17/30</sup> Management

## Possible Physical Hardware

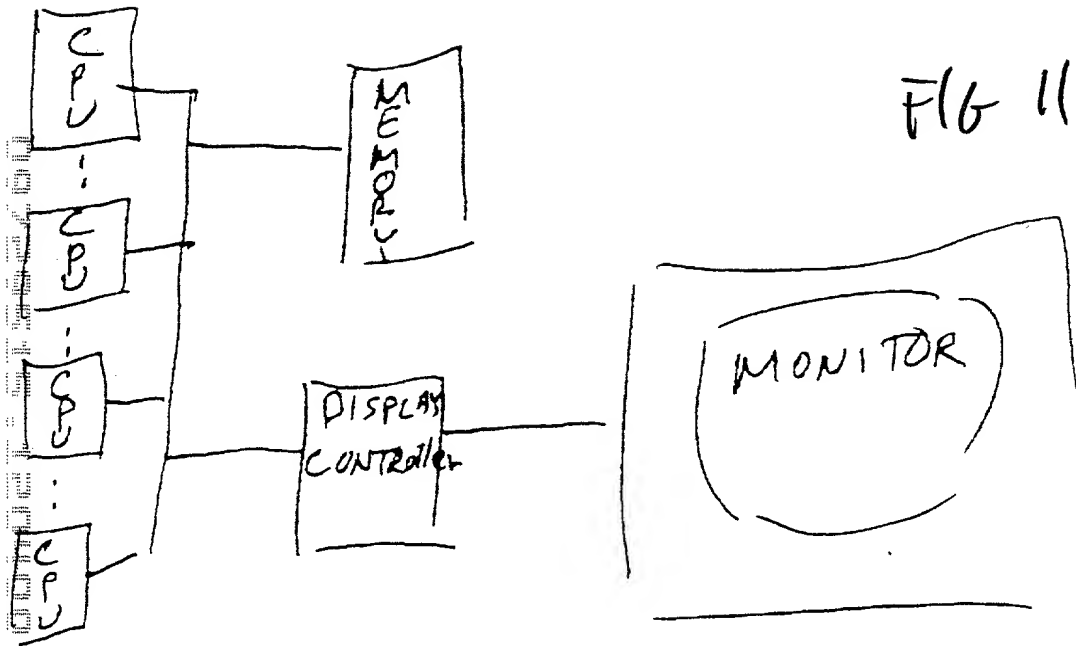
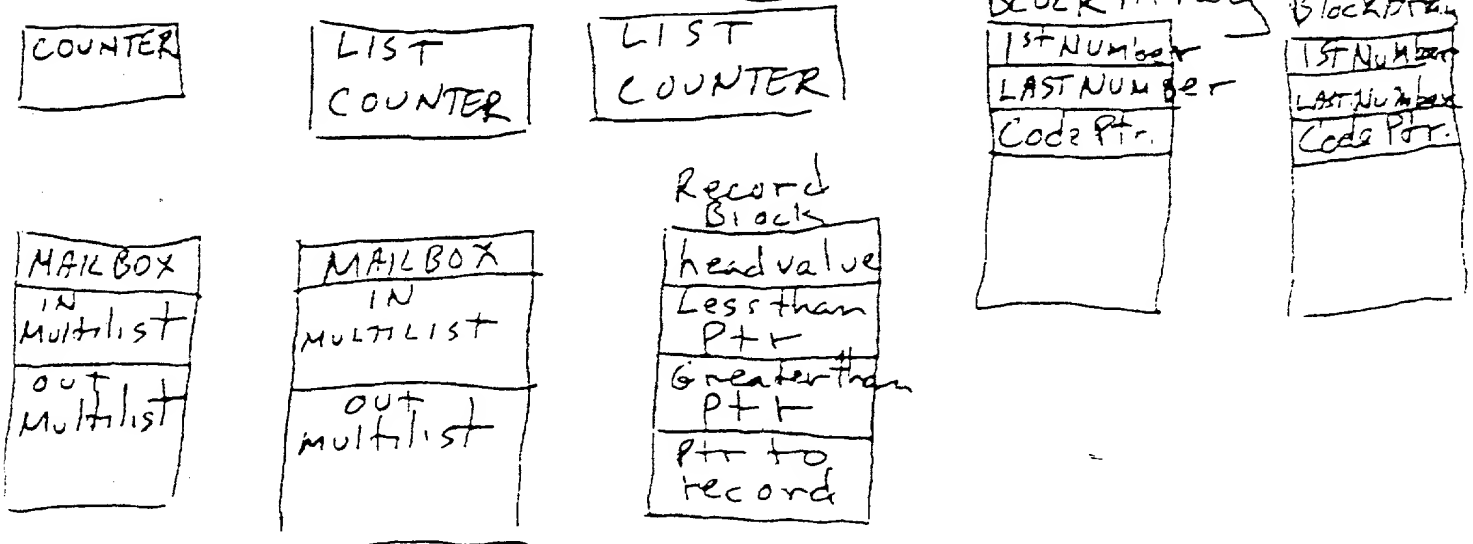


Fig 11

## Possible Memory Organization



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# Writing a Record

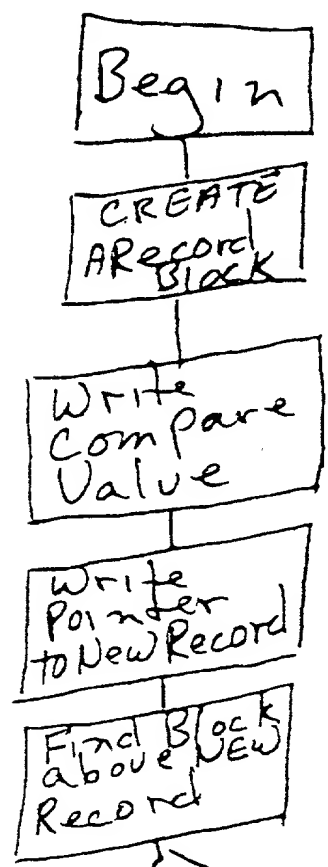
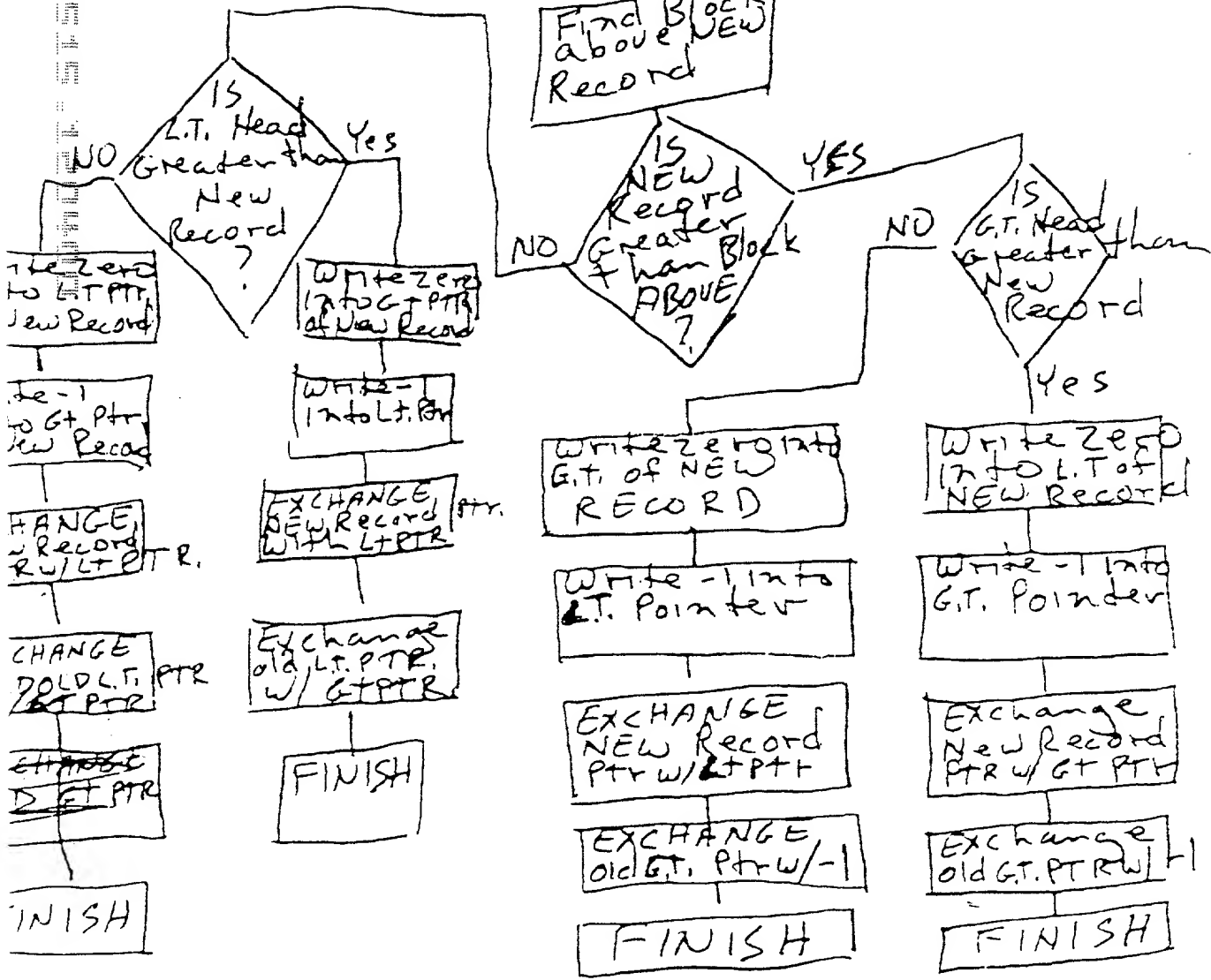
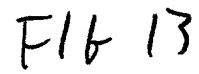


FIG 12



[illegible]

# Adding to a Value in a Record <sup>20/30</sup>

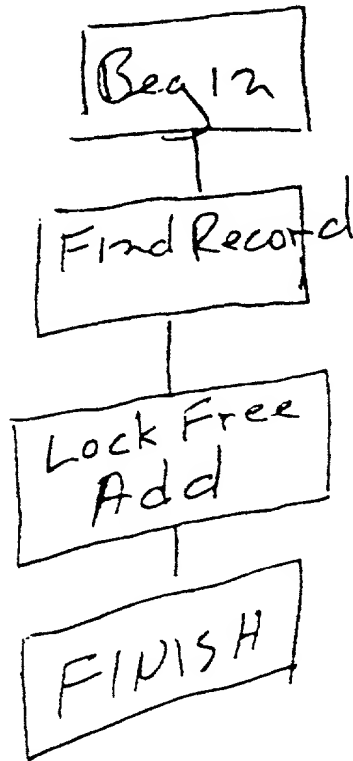


FIG 14

# Altering A String <sup>21/30</sup>

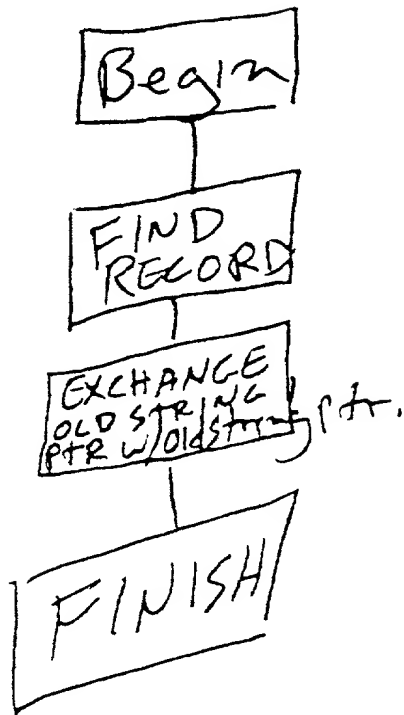


FIG 15

## PERFORMING MULTIPLE OPERATIONS

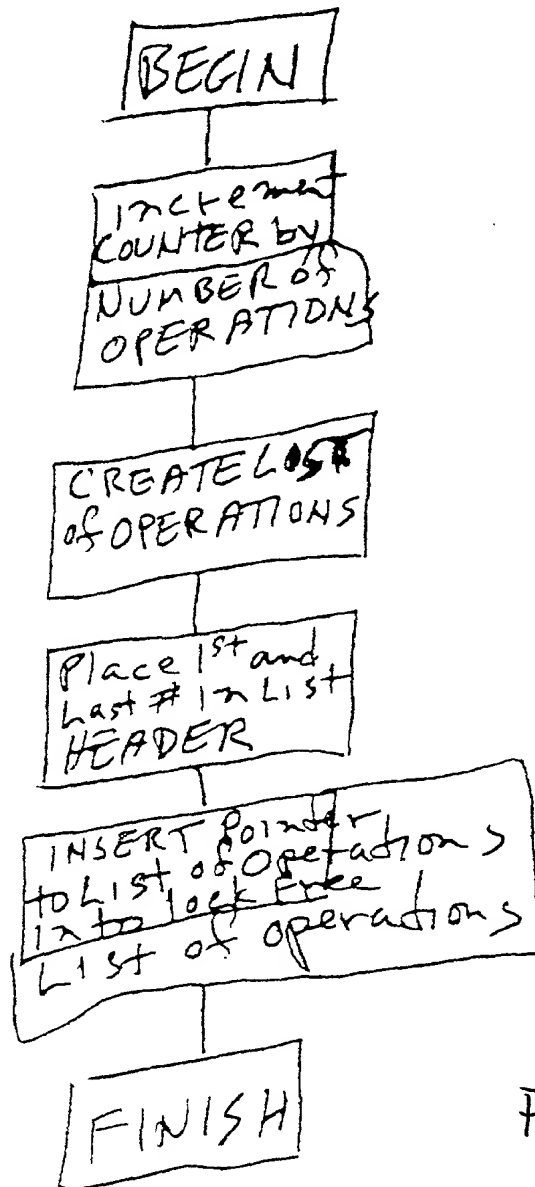
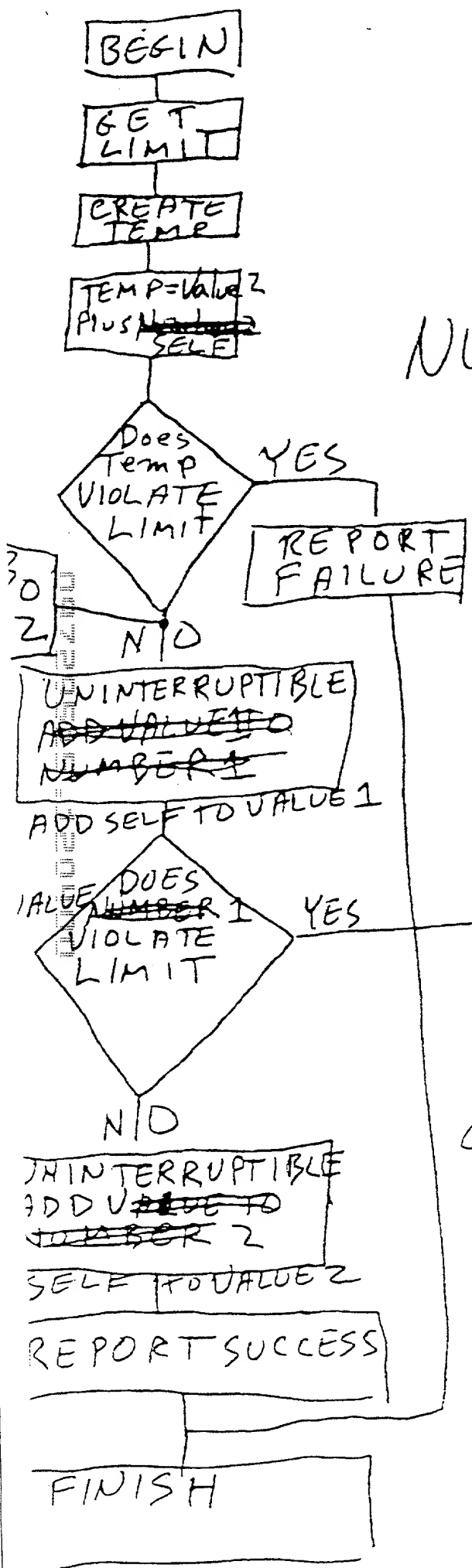


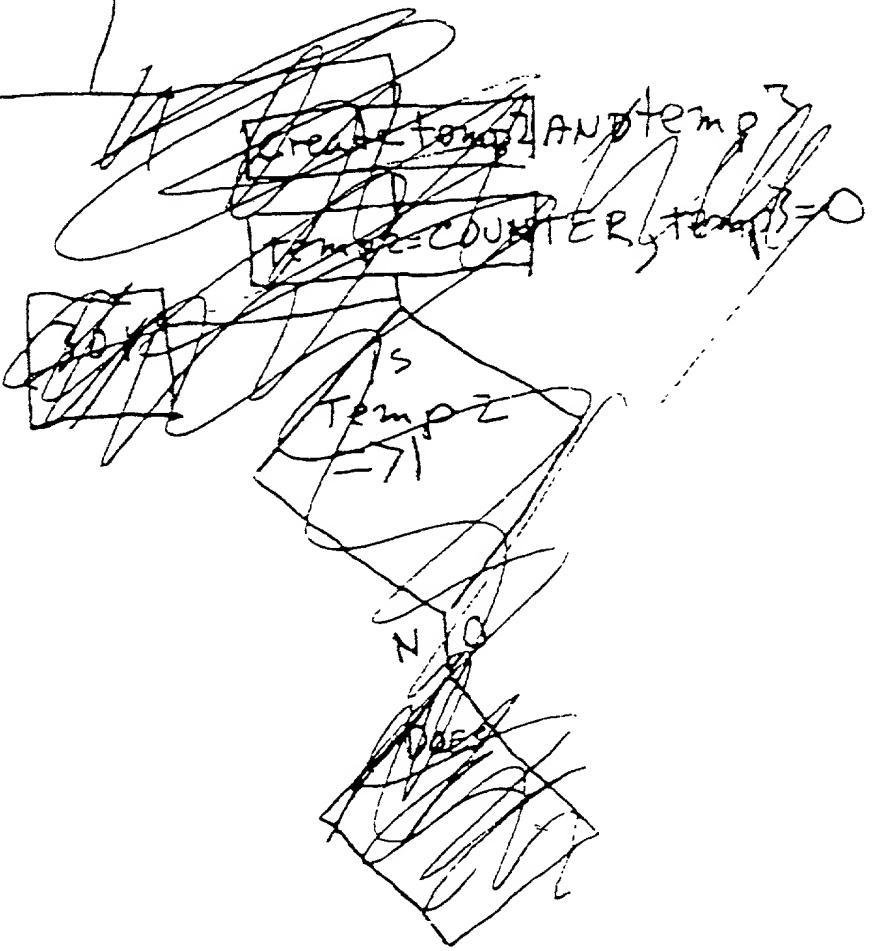
FIG 16

# ADDING A NUMBER

FIG 17



301



## UNINTERRUPTIBLE INCREMENT COUNTER

PLACE SELF ON LIST  
WHERE COUNTER INDICATES

MARK SELF NOT FAILED

SUBTRACT SELF FROM  
VALUE 1

PAUSE

CHANGE SELF TO ZERO

~~CHECK TO~~

~~REPORT FAILURE~~

FINISH

MARKED  
FAILED  
?

NC

302



CREATE TEMP2, TEMP3

~~temp2 = 0~~ temp2 = 0

~~601-511-1111~~

303

temp  
COUNTER = temp2

YES

210

Get LIST ELEMENT  
REFERRED TO BY  
TEMP 2

INCREMENT  
TEMP 2

CAN  
LIST ELEMENT  
BE ADDED TO  
TEMP3 PLUS NUMBERZ  
WITHOUT  
VIOLATING  
LIMIT

Yes


ADDTOTEMP3

Can Value be added to Temp 3 plus Number 2 without violating Limit

$$\frac{Z}{D}$$

Subtract  
From NUMBER1  
(UNINTERRUPTIBLE)

REPORT FAILURE



MARK AS  
FAILED

Index	Symbol	Unit
1	$\alpha$	deg
2	$\beta$	deg
3	$\gamma$	deg
4	$\delta$	deg
5	$\epsilon$	deg
6	$\zeta$	deg
7	$\eta$	deg
8	$\theta$	deg
9	$\phi$	deg
10	$\chi$	deg
11	$\psi$	deg
12	$\omega$	deg
13	$\nu$	deg
14	$\mu$	deg
15	$\lambda$	deg
16	$\kappa$	deg
17	$\iota$	deg
18	$\theta$	deg
19	$\phi$	deg
20	$\chi$	deg
21	$\psi$	deg
22	$\omega$	deg
23	$\nu$	deg
24	$\mu$	deg
25	$\lambda$	deg
26	$\kappa$	deg
27	$\iota$	deg
28	$\theta$	deg
29	$\phi$	deg
30	$\chi$	deg
31	$\psi$	deg
32	$\omega$	deg
33	$\nu$	deg
34	$\mu$	deg
35	$\lambda$	deg
36	$\kappa$	deg
37	$\iota$	deg
38	$\theta$	deg
39	$\phi$	deg
40	$\chi$	deg
41	$\psi$	deg
42	$\omega$	deg
43	$\nu$	deg
44	$\mu$	deg
45	$\lambda$	deg
46	$\kappa$	deg
47	$\iota$	deg
48	$\theta$	deg
49	$\phi$	deg
50	$\chi$	deg
51	$\psi$	deg
52	$\omega$	deg
53	$\nu$	deg
54	$\mu$	deg
55	$\lambda$	deg
56	$\kappa$	deg
57	$\iota$	deg
58	$\theta$	deg
59	$\phi$	deg
60	$\chi$	deg
61	$\psi$	deg
62	$\omega$	deg
63	$\nu$	deg
64	$\mu$	deg
65	$\lambda$	deg
66	$\kappa$	deg
67	$\iota$	deg
68	$\theta$	deg
69	$\phi$	deg
70	$\chi$	deg
71	$\psi$	deg
72	$\omega$	deg
73	$\nu$	deg
74	$\mu$	deg
75	$\lambda$	deg
76	$\kappa$	deg
77	$\iota$	deg
78	$\theta$	deg
79	$\phi$	deg
80	$\chi$	deg
81	$\psi$	deg
82	$\omega$	deg
83	$\nu$	deg
84	$\mu$	deg
85	$\lambda$	deg
86	$\kappa$	deg
87	$\iota$	deg
88	$\theta$	deg
89	$\phi$	deg
90	$\chi$	deg
91	$\psi$	deg
92	$\omega$	deg
93	$\nu$	deg
94	$\mu$	deg
95	$\lambda$	deg
96	$\kappa$	deg
97	$\iota$	deg
98	$\theta$	deg
99	$\phi$	deg
100	$\chi$	deg

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# Device for Non-Blocking List MANAGEMENT

## POSSIBLE HARDWARE

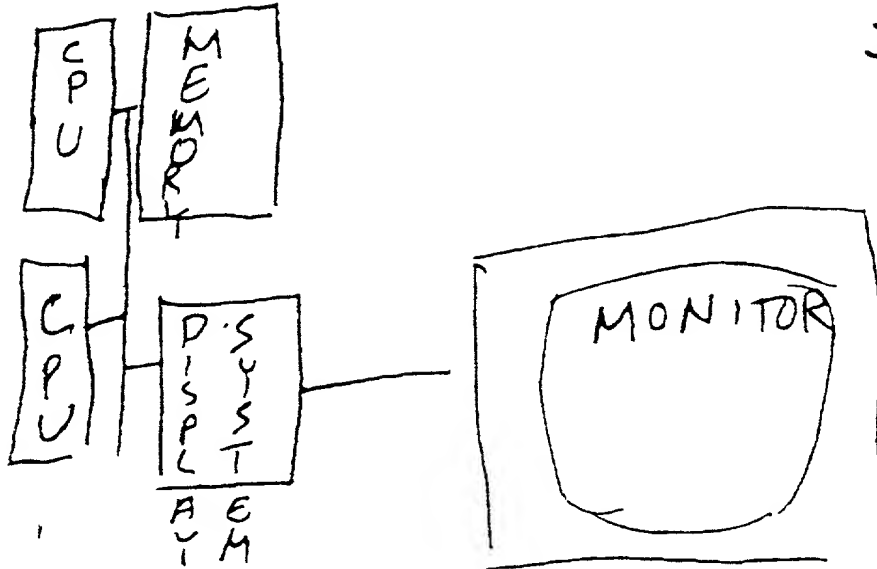
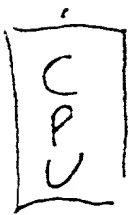


FIG 20



## POSSIBLE MEMORY ORGANIZATION

MASTER  
POINTER

POINTER 1

POINTER 2

POINTER 3

POINTER 4

COUNTER 1

COUNTER 2

COUNTER 3

COUNTER 4

SEMAPHORE 1

SEMAPHORE 2

SEMAPHORE 3

SEMAPHORE 4

BLOCK 1

BLOCK 2

BLOCK 3

BLOCK 4

POINTER  
LIST

# REMOVE ITEM FROM LIST

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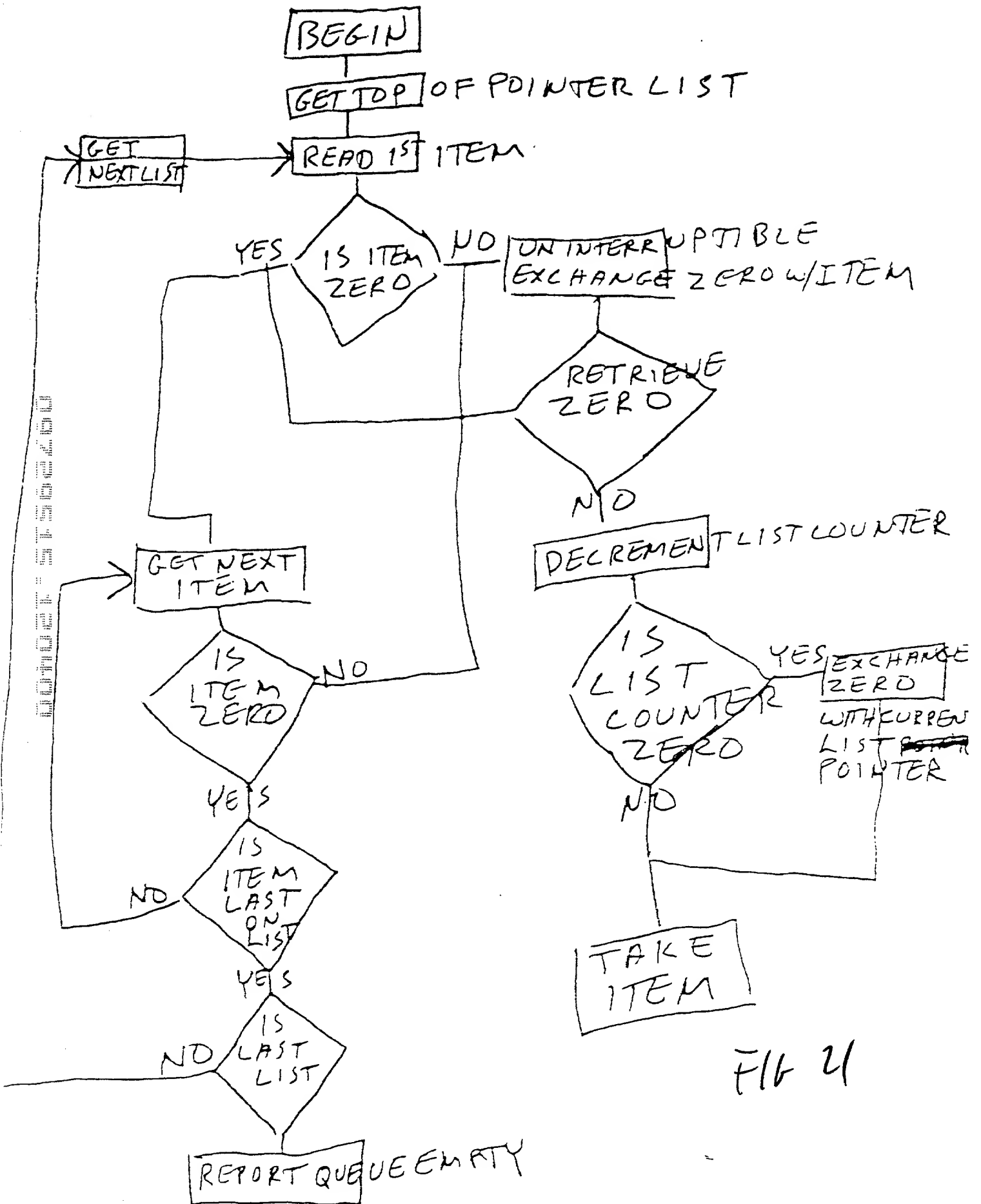


Fig 21

# PLACE ITEM ON LIST

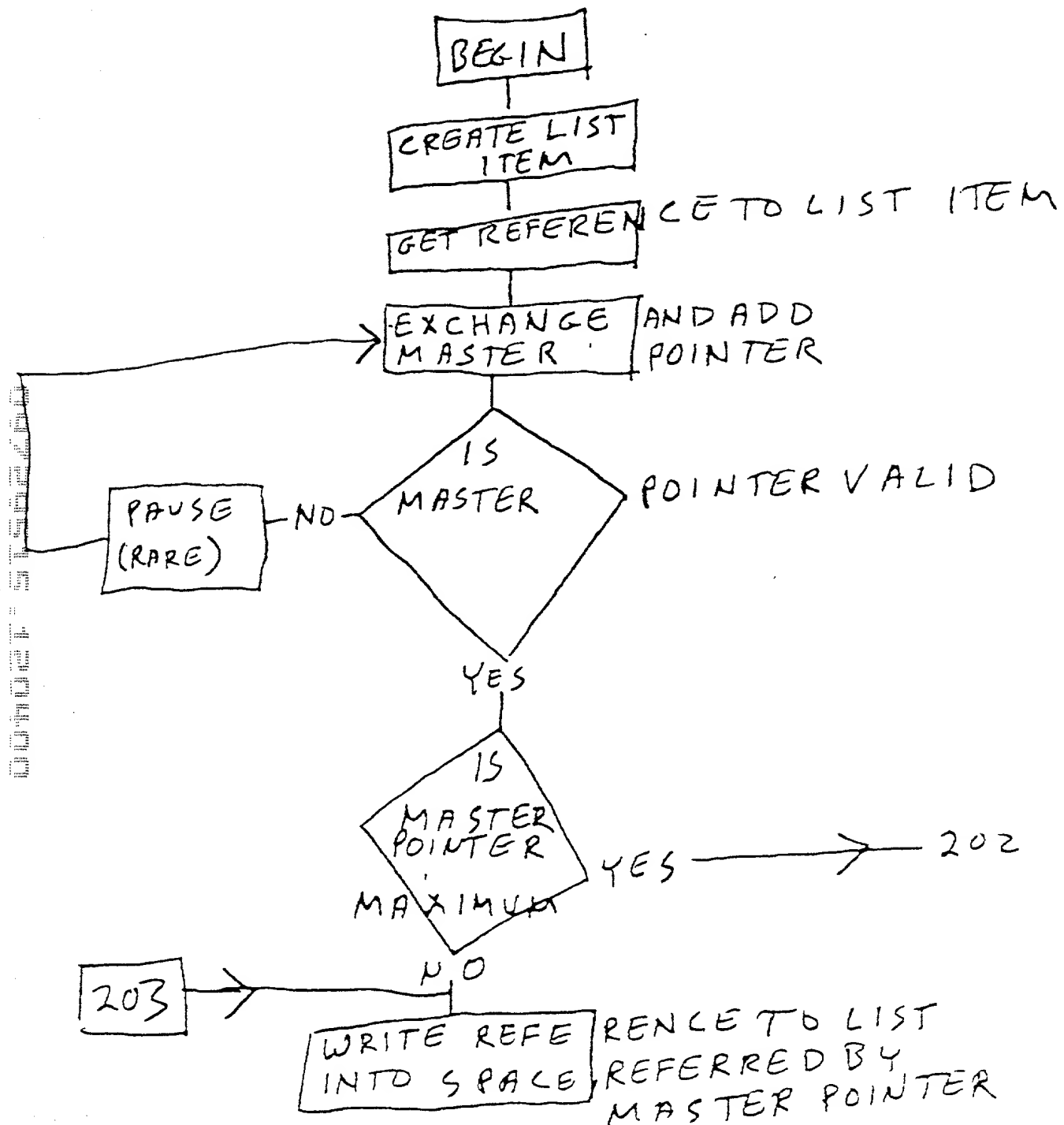
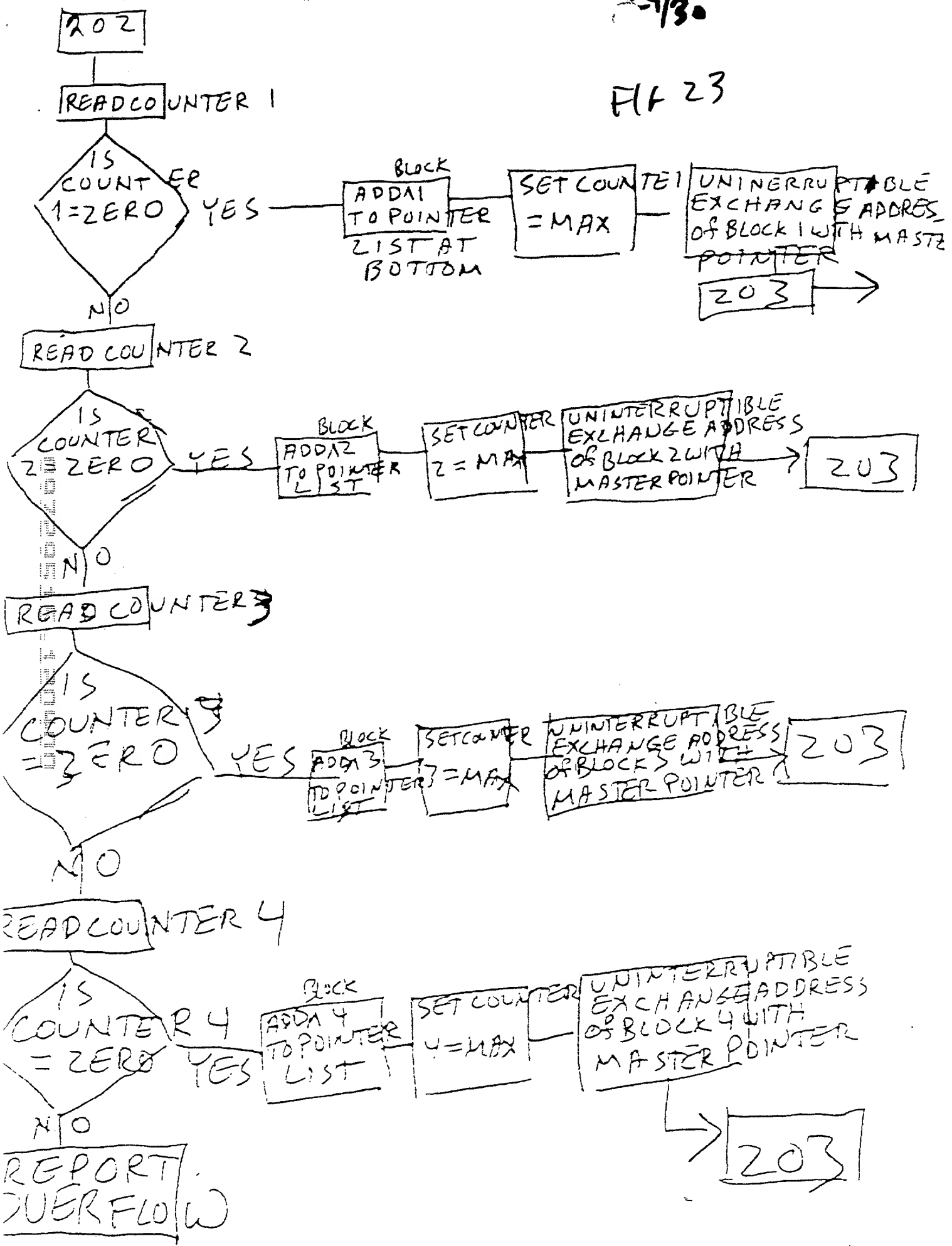


FIG 22

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Flt 23



# INITIALIZE LIST

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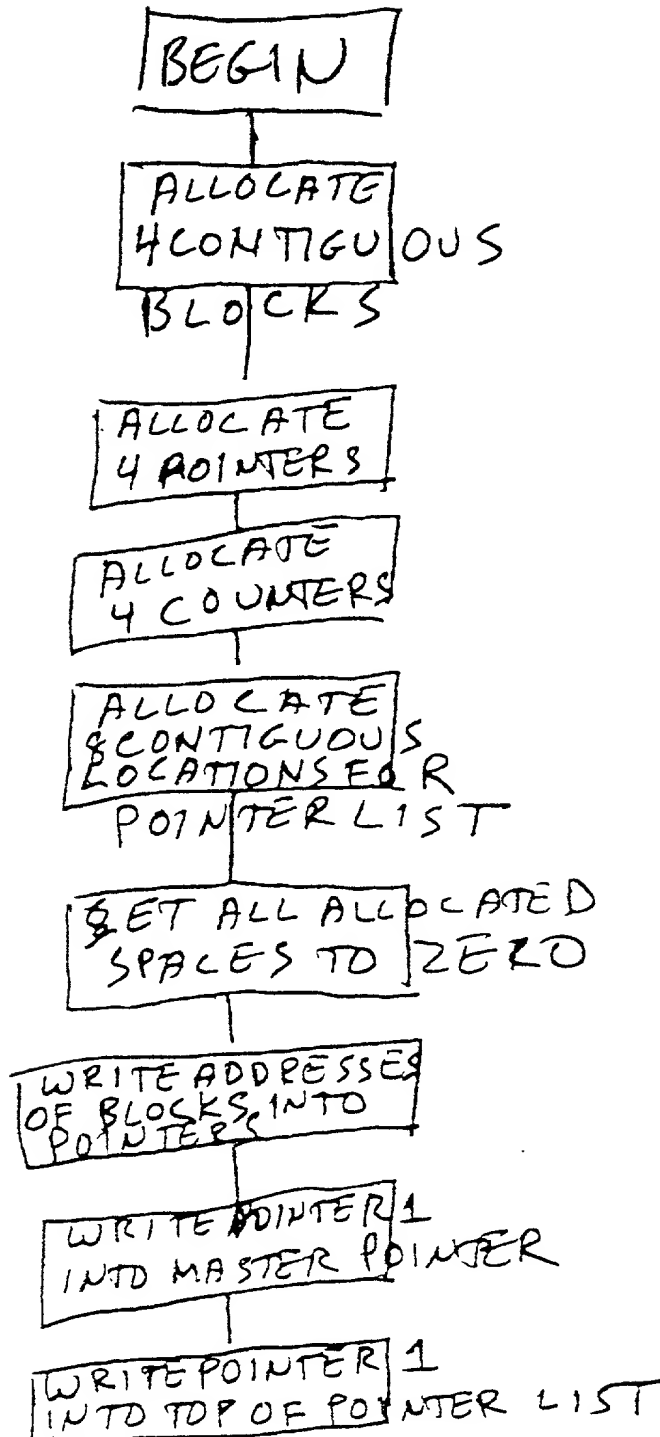
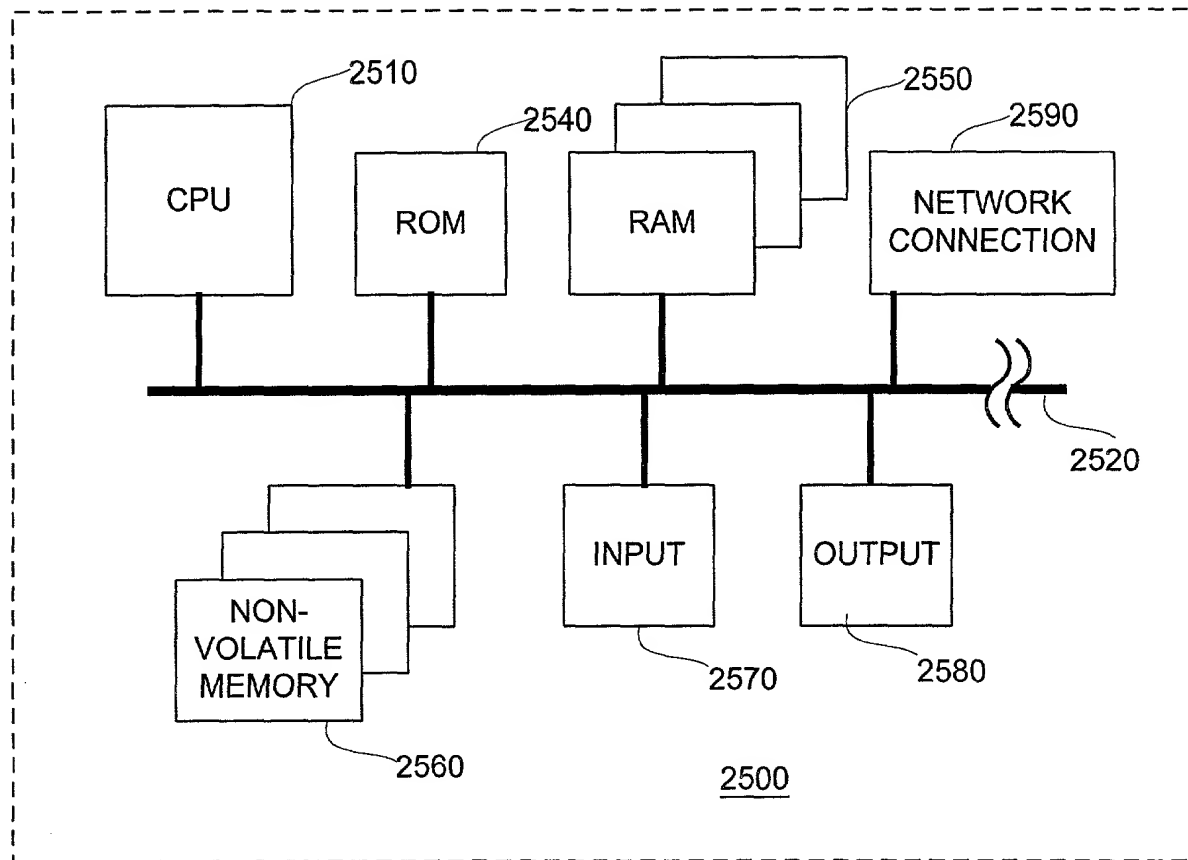
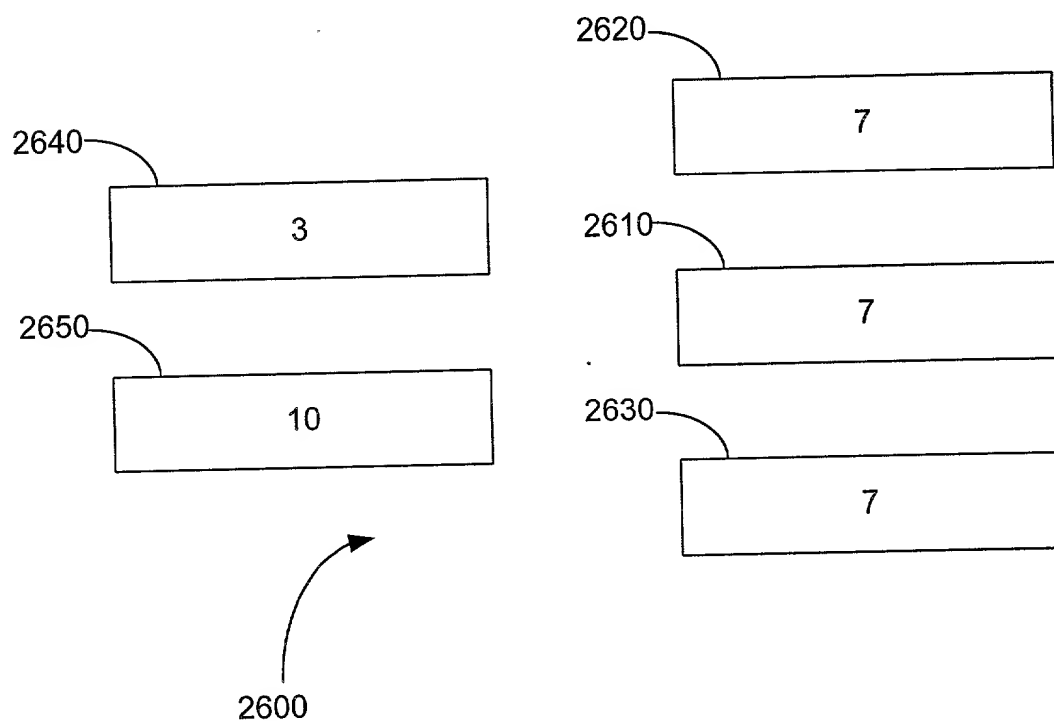


Fig 24



*FIG. 25*

Prior Art



*FIG. 26*



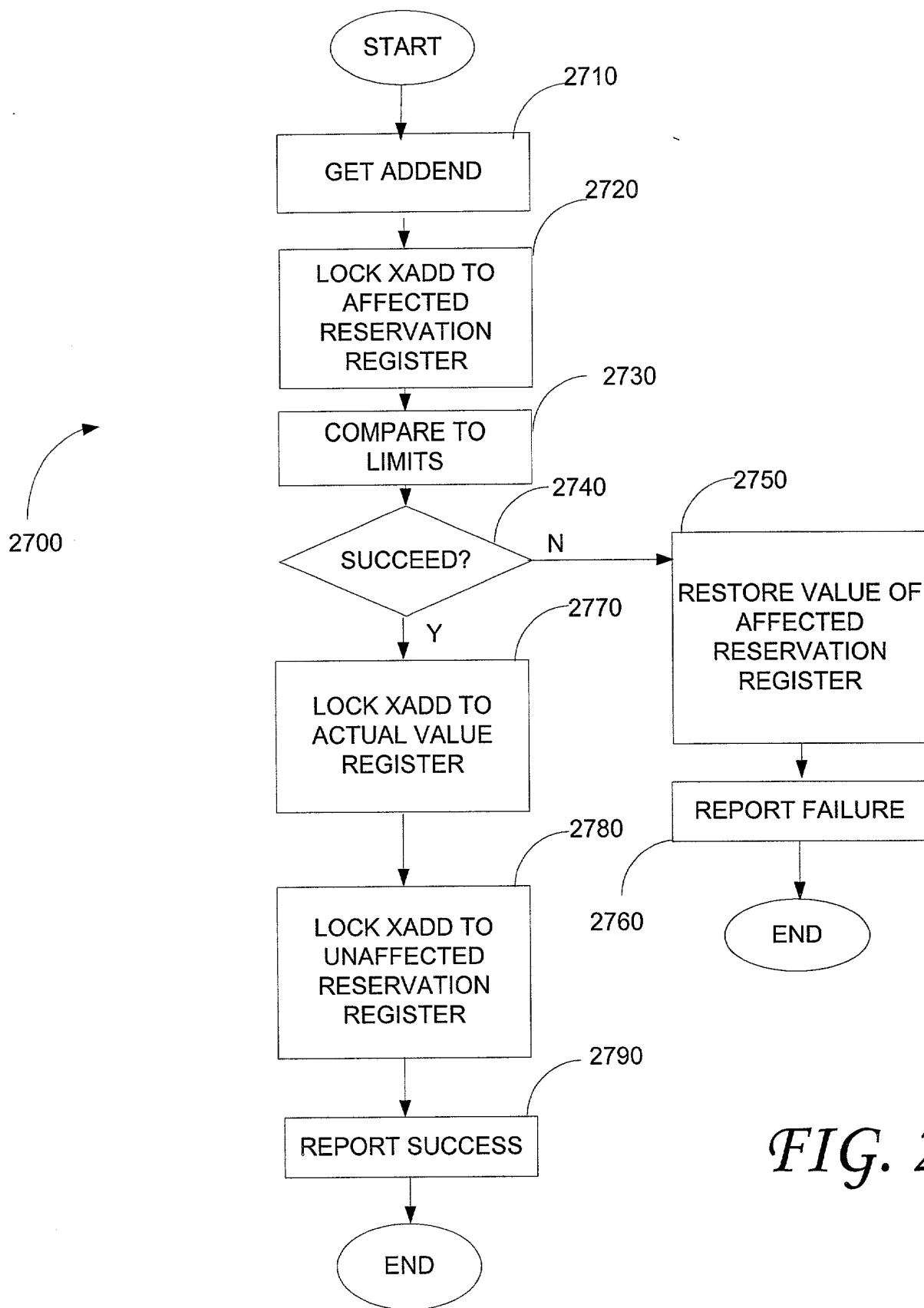


FIG. 27